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ABSTRACT

This teaching unit, Oceanographer, is one in a series of career guides developed by Project CHOICE (Children Have Options in Career Education) to provide the classroom teacher with a source of career-related activities linking third and fourth grade elementary classroom experiences with the world of work. Part of the Science and Engineering Occupations Career Cluster, these six lessons explore the nature of the work of oceanographers and what kind of educational skills a person would need to enter this type of work. An introductory unit gives the unit rationale, goals, performance objectives, entry-level assessment, and evaluation. A list of instructional materials, such as films, filmstrips, books, art supplies, and community resources, is included in this section. Each lesson contains a statement of purpose, materials needed for the lesson, an introductory statement, class activities, and a summary activity. Written materials (such as worksheets, surveys, and task cards) are included where feasible. (This guide is one of twenty-four in the series for grades 3 and 4--CE 025 766-789.) (MEK)

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OFFICE OF CLAUDE W. RICHARDSON
KERN COUNTY SUPERINTENDENT OF SCHOOLS

Project CHOICE

#103

A CAREER EDUCATION UNIT FOR GRADES 3 AND 4

OCEANOGRAPHER

(Science and Engineering Occupations Career Cluster)

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CE 085 769

September, 1977

FOREWORD

Project CHOICE: Children Have Options in Career Education, is an Exemplary Project from the San Diego City School District, which has been adapted, with ESEA Title IV-C funding, for Kern County Schools.

Through Project CHOICE, units have been developed to provide the classroom teacher with a source of career-related activities linking classroom experiences with the world of work. All students, regardless of their post-high school plans, share an equal need for career awareness, decision making skills, and other elements of career education. This goal can be accomplished if all teachers and counselors "fit" the appropriate units where they best apply in the curriculum.

We are indebted to the San Diego City School District, and the Project CHOICE staff, for developing and field testing the original units.

For their excellent work in re-writing the units in order to adapt them for use in Kern County Schools, we wish to recognize:

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SCIENCE AND ENGINEERING OCCUPATIONS

CAREER CLUSTER:

OCEANOGRAPHER

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SCIENCE AND ENGINEERING OCCUPATIONS

CAREER CLUSTER:

OCEANOGRAPHER

TEACHERS' GUIDE

RATIONALE

The ocean covers more than two-thirds of the world's surface. It is an important source of food and minerals. It influences the weather, provides a medium of transportation and offers means of recreation. Children have a natural curiosity about the ocean. They should become aware of the nature and importance of the work of oceanographers, the scientists and technicians who study all aspects of the world's oceans.

GOALS

Through this unit, pupils will:

-Learn about the work of oceanographers.

-Learn some of the special skills oceanographers need.

-Come to appreciate the vastness and complexity of the arena in which oceanographers carry out their work - the oceans of the world.

-Become aware of how the work that oceanographers do affects their lives.

PERFORMANCE OBJECTIVES

By the end of this unit, pupils will be able to:

-Identify 3 forms of tidepool life and 3 forms of deep sea life.

-Identify the work of at least one kind of oceanographer.

-State the basic definition of oceanography.

-Describe how oceanographers affect their lives.

-Relate educational skills of oceanographers to skills they use in their work.

ENTRY LEVEL ASSESSMENT
(To be used as a pre-test and a post-test.)

Use this informal inventory to determine class awareness of oceanographers, what they do, and why their work is important.

1. What is oceanography?

2. What are some of the things oceanographers study?

3. What do we get from the sea?

4. Why is it important that we learn all we can about the oceans?

5. What does a person have to know to become an oceanographer?

EVALUATION

The final lesson has been set aside for evaluation. The Entry Level Assessment may be used as a pre-test as well as a post-test, or the teacher may wish to develop his/her own. Responses may be taped or written, so that comparisons may be made in order to determine how well pupils have achieved the objectives.

SUGGESTED INSTRUCTIONAL MATERIALS

The following materials and equipment may be used in this unit:

-Films and filmstrips as listed.
-Books as listed.
-Magazines.
-Film and filmstrip projector.
-Record player.
-Butcher paper, chart paper.
-Felt pens and variety of art materials.
-Map.
-Task Cards.

Films:

Oceanography: Science of the Sea
California Gray Whale
Coral Reef

Filmstrips:

Ocean is Jobs for People
Learning about the World Beneath the Waves

INSTRUCTIONAL MATERIALS: (cont'd)

Soundstrips:

CER Oceanography Series
Introduction to Oceanography
Sealab II
Undersea Research Vehicles
Whale Watching at San Diego

Books:

Title	Author
All About Undersea Exploration	Brindge
Oceanographers in Action	Bergaust
Beneath Land and Sea	Forsee
How and Why Wonder Book of Oceanography	Scharff
The Sea Searchers: Men and Machines at the Bottom of the Sea	Shannon
Explorers of the Deep: Pioneers of Oceanography	Cox
Jobs in Marine Science	Ross
Career Opportunities	Sidney
Opportunities in Environmental Careers	Fanning

AVAILABLE IN INSTRUCTIONAL RESOURCES CENTER (IRC): OFFICE OF THE KERN COUNTY SUPERINTENDENT OF SCHOOLS

Films:

#4902 Coco at the Seashore
934 Ocean-A first film
#1822 Tide Pool Marine Life
#4855 Beach and Sea Animals
#5220 Salt Water Wonderland
#5313 Tripping with Terwilliger-Bay Tide lands
#5315 Tripping with Terwilliger-Redwood Forest, Stream, Ocean, Beach, etc.

INSTRUCTIONAL STRATEGY: LESSONS 1 - 6

Lesson 1

PURPOSE

To introduce students to the meaning of oceanography and to the general type of work performed by oceanographers.

MATERIALS

1. Entry Level Assessment.
2. Film or filmstrip about the ocean and its influence on man. Suggested film: Ocean- a First Film, #934 (Available at IRC, Superintendent of Schools).
3. Film projector.
4. Chart paper and felt pen.
5. Task cards 1 and 2.

INTRODUCTION

Say: "Have you ever looked at the ocean and wondered just how big it really was? The Pacific Ocean is so big that a person could sail in a boat for weeks and weeks and never see land. There are many oceans. We are going to learn about the scientists whose job it is to learn all they can about the ocean. They are called oceanographers. Let's begin by discovering just how much we may already know about oceanographers."

CLASS ACTIVITIES

1. Take Entry Level Assessment (class discussion may be taped if desired.)
2. View film or filmstrip.
3. Discuss and list some of the jobs that might be done by people doing oceanographic work.*
4. Task cards.

SUMMARY

1. Discussion of the film.
2. Reports from students using task cards.
3. Review and discuss list of oceanographic work.

*To the teacher: Prior to this discussion, you may wish to review the Teacher Reference Sheets following Lesson 2.

Lesson 2

PURPOSE

To familiarize students with the various types of oceanographers, the work they do, and some of the basic skills and aptitudes needed in their jobs.

MATERIALS

1. Teacher Reference Sheet, next page.
2. Books about oceanography (see book list in Suggested Instructional Materials section).
3. Chart paper.
4. Paper, pencils, felt pens.
5. Task cards 3 and 4.

INTRODUCTION

Say: "Oceanographers do many different kinds of jobs. Some study the living things that live in the ocean. Others try to learn all they can about the minerals that are in the ocean. The oceans are so big and so important to all our lives that it takes many people to learn all we can about them. Today we are going to learn about the different kinds of oceanographers and about the work they do."

CLASS ACTIVITIES

1. Read books to students or allow reading time.
2. Discuss types of jobs listed in Teacher Reference Sheet I. As pupils give responses, teacher should make a list on chart paper or chalkboard.
3. Discuss education, training, qualifications, etc., for oceanographers as listed in Teacher Reference Sheet II. Write summaries on chart paper for pupils to copy:
   A. Description of work.
   B. Education and skills needed.
   C. Type of person suited.
4. Task card activities

SUMMARY

1. Discussion of activities.
2. Review of class lists and job descriptions.
3. Reports from pupils using task cards.

Teacher Reference Sheet I

Oceanography is the scientific study of all aspects of the oceans, their boundaries, and their contents.

The duties of an oceanographer depend upon his area of specialization.

The Biological Oceanographer (Marine Biologist) studies the ocean's plant and animal life and their environment.

The Physical Oceanographer studies the physical properties of the ocean; the movement of tides and waves; and the sea's relationship to the atmosphere above.

The Geological Oceanographer (Marine Geologist) studies the topographic features, rocks and sediments of the ocean's floor.

The Chemical Oceanographer seeks to determine the chemical composition of the ocean floor and sediments and the various chemical reactions that occur in the sea.

The Marine Meteorologist studies the interaction of the atmosphere and the ocean and the processes by which weather is generated over the ocean.

Oceanographic Engineers design and build systems, devices, and instruments used in oceanographic research and operation.

Approximately three out of four oceanographers are engaged primarily in research and development activities.

Teacher Reference Sheet II

OCEANOGRAPHER

Oceanographers conduct surveys and experiments and then collect and study the data about the motions of ocean water (waves, currents, and tides), marine life (sea plants and animals and their habits), ore and petroleum deposits (minerals and oils contained in the nodules and oozes of the ocean floor), and the contour of the ocean (ocean mountains, valleys, and depths). Many of their findings are compiled for maps, charts, graphs, and special reports and manuals. Some of the oceanographer's time each year may be spent on the water, gathering data and making observations. A large amount of oceanographic work is done on dry land and by people who never or hardly ever go to sea.

History and Future--Employment opportunities for oceanographers should be excellent in all fields of specialization.

The demand for oceanographers is accelerating as man becomes determined to learn more about the sea and its resources.

The future of this new and challenging profession, oceanography, is most promising.

Work Environment--Oceanographers in shore stations, laboratories, and research centers will work on a five day, forty hour week basis. Occasionally, they will serve a longer shift, particularly when conditions of a research experiment demand around-the-clock surveillance. Such assignments may involve unusual working hours depending on the nature of the research or the purpose of the trip.

Training and Education--Four years of college is required for beginning positions in oceanography. Students in high school should pursue an academic course including as many of the basic and advanced courses in mathematics and science as they can obtain. In college, a broad program covering the basic sciences with a major in physics, chemistry, biology, or geology is desirable.

Qualifications--An oceanographer should have a strong interest in science; an interest in outdoor activities such as hunting, fishing, swimming, boating, or animal care; and an interest in scholarly activity (reading, research, and writing).

Advantages and Disadvantages--The individual who likes the water, who enjoys life aboard ships, and who is willing to absent himself from home for periods of time will find satisfaction in certain oceanographic positions.

The individual who does not wish to leave his family or interrupt his community activities has an opportunity to seek positions where travel away from home is not necessary.

Teacher Reference Sheet III

General Information:

SIZE OF THE SEA

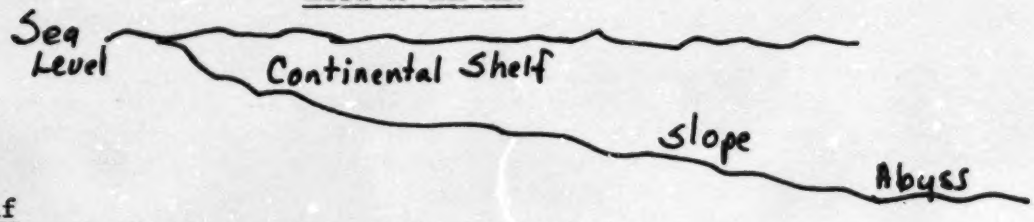
3/4 earth covered with water.

300 million cubic miles of water-enough water to provide every man, woman, and child on earth with a private swimming pool-a mile long, a mile wide and 500 feet deep.

Oceanographers say: "All oceans shown on the map, along with dozens of seas, gulf and bays, are really parts of a single body of water-one vast ocean of the earth."

Ocean - 39 times bigger than U.S.

SHAPE OF THE SEA



Shelf
- -sand and mud, occasional rocks and boulders
- -gently sloping platform surrounding most of the world's major land masses.

Slope
- -like driving down a very gentle hill.

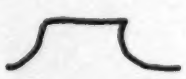
Abyss
- -true ocean floor.

Chasm
- -sunken canyons.
- -some mightier than the Grand Canyon.
- -one theory: carved by submarine currents.
- -belong to the edges of the continents-occur along the shelf or slope.

Trench
- -deep gorges in ocean floor.
- -Marianas Trench (over 36,000 ft.).

Mountains
- -Some peaks so high that they rise above the water to form islands.
- -Hawaiian Islands.
- -Atlantic Ridge-largest mountain range on earth (goes southward from Iceland almost to the Antarctic Circle).

Guyot
- -flat top mountain.
- -odd shape is a mystery (may have one time had peaks).



TEACHER REFERENCE SHEET IV

QUESTIONS

1. What is oceanography?
2. Name some different kinds of things oceanographers study.
3. How much of the earth is covered by water?
4. Of what is sea water made?
5. What causes tides?
6. What do we get from the sea?
7. How can you tell a plant from an animal?
8. What do animals that live in the sea need in order to survive?
9. How does a fish get oxygen (air)?
10. How does a turtle get oxygen?
11. How does a whale get oxygen?
12. What do fish feed on?
13. How are fish protected?
14. How can we care for the sea?
15. What does cold-blooded mean?

TEACHER REFERENCE SHEET IV

ANSWERS

1. The study of the sea by many different kinds of scientists, including biologists, chemists, physicist and geologist.

2. Life in the sea; waves; rocks under the sea; currents; weather; temperature; tides; chemistry; etc.,

3. Three times as big as the land (covers about 72% of the earth).

4. Many different kinds of chemicals dissolved in water. Common table salt is the most abundant.

5. The pull of the moon and sun.

6. Food; medicines; oil; minerals, etc., Rain, weather and climate depend to a great extent on the sea.

7. Animals move; gather their own food. Plants don't move; manufacture their own food.

8. Oxygen-many breathe water, some breathe air (mammals, birds, reptiles).
   Food.
   Protection.

9. It passes water over its gills.

10. It breathes air.

11. It breathes air.

12. Living fish and other living animals, plants, dead and dying animals.

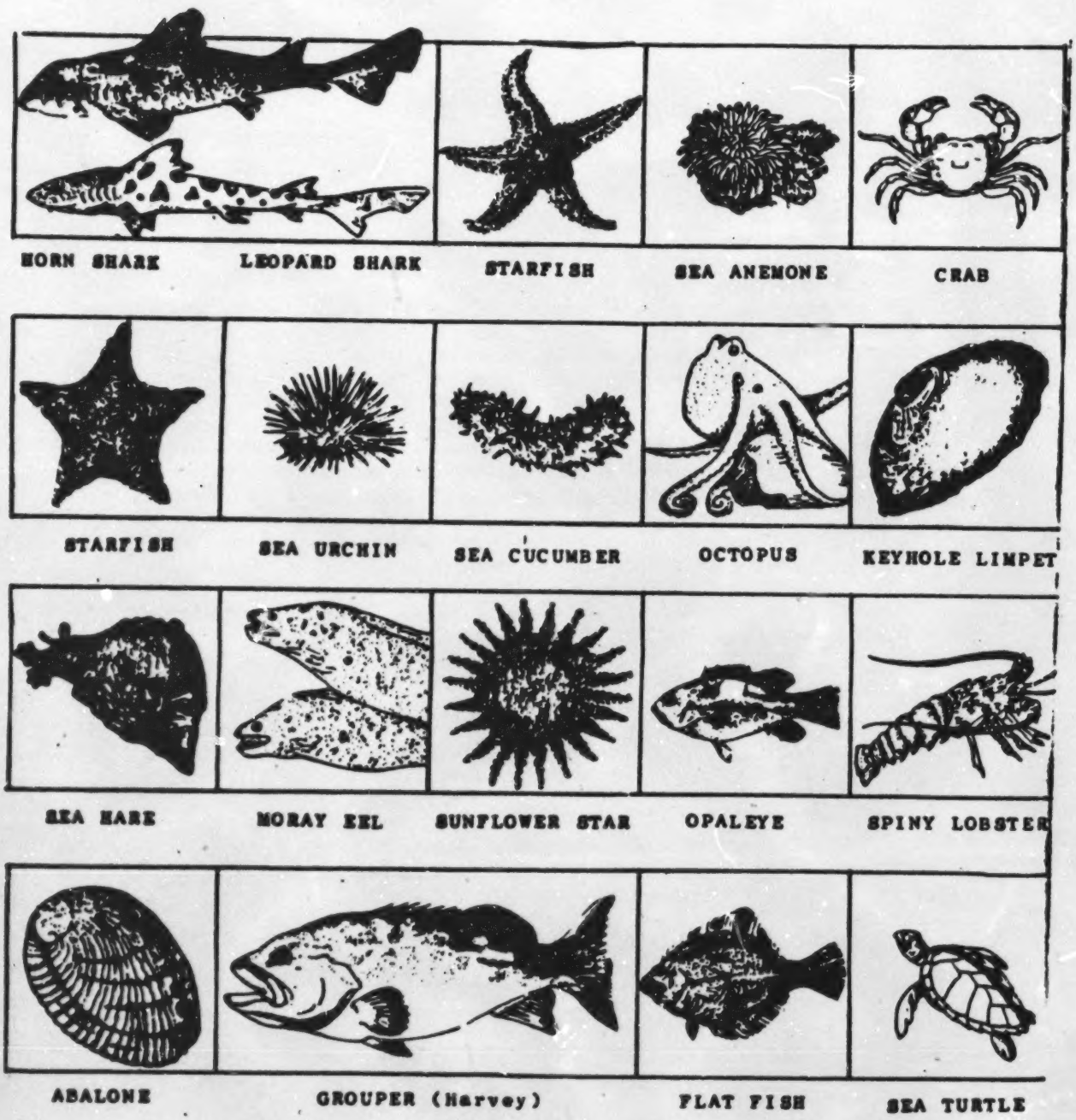
13. They have many protective devices: scales, spines, teeth, poisons, coloration, armor, body shape, fast swimming, schooling, hiding in rocks, etc.

14. Don't deplete the animals in it (extinction of species). Don't add harmful chemicals to the sea, e.g., DDT, radioactive wastes, detergents, chemical wastes, etc.

15. The animal's body is at the same temperature as its environment.

STUDENT OCEANOGRAPHY WORKSHEET

1. CIRCLE IN BLUE, THE ANIMALS THAT CARRY THEIR HOMES.
2. CIRCLE IN RED, THE ANIMALS FOUND IN TIDE POOLS.
3. CIRCLE IN GREEN, THE ANIMAL THAT CAN RE-GROW A MISSING LEG.



Lessons 3 and 4

PURPOSE

To offer students the opportunity to observe several varities of ocean and tidepool life, and to appreciate the significance for them in their lives.

MATERIALS

1. Films and filmstrips about ocean and tidepool life, possible future uses and conservation.*
   Suggested films: Salt Water Wonderland, #5220
   Tidepool Marine Life, #1822
   Beach and Sea Animals, #4855
   Tripping with Terwilliger #5315 and #5313
   (Available at IRC, Superintendent of Schools)
2. Film or filmstrip projector.
3. Teacher Reference Sheets.
4. Books as listed in Suggested Instructional Materials.
5. All task cards.
6. Optional: Pictures or viewmaster reels of Sea World.

INTRODUCTION:

Say: "The ocean is full of living creatures. It is very important that man learns all he can about the living things which make the ocean their home. We know that many fish are important sources of food for man. We also have learned that man must protect the ocean from pollution and other dangers that threaten the lives of all creatures of the sea. The oceanographer who studies these problems is called a Marine Biologist. Listen carefully to what the people in the films say about the various living creatures of the sea. Think about what it would be like to be a person who studies about the ocean's plant and animal life. Ask yourself if someday you might be able to do that kind of work.

CLASS ACTIVITIES

1. View films or filmstrips.
2. Discuss the animal and plant life shown in the films and the implications for food sources and conservation of these resources.
3. Discuss the work of the Marine Biologists and other oceanographers who study ocean life*
4. Task card activities.
5. Free reading of books.

SUMMARY

1. Review discussion based on film (s).
2. Reports from students using task cards.

*To the teacher: You may wish to study all of the Teacher Reference Sheets, prior to leading this discussion.

Lesson 5

PURPOSE

To have students gain in understanding and appreciation of how living near the ocean affects their lives.

MATERIALS

1. Film or filmstrip about the sea shore. Suggested film: Coco at the Seashore #4902 (available at IRC, Superintendent of Schools).
2. Film or filmstrip projector.
3. Large wall map showing location of ocean in relation to Kern County.
4. Chart paper and felt pen.
5. Paper and pencil.
6. Task card 13.

INTRODUCTION

Say: "Have you ever thought about the many ways that living near the ocean influences your life? Sometimes, when we live so close to something, we take it for granted and we forget how very important it is to our lives. Today, we are going to learn all we can about how living close to the ocean affects our lives.

CLASS ACTIVITIES

1. View film or filmstrip.
2. Have each pupil make a list of at least three ways that living near the ocean affects his/her life.
3. Make a class list, with the teacher, of all the ways that living near the ocean affects people's lives.
4. Review the meaning of oceanography and the main work of oceanographers.
5. Task card activities.

SUMMARY

1. Discuss the film or filmstrip.
2. Review and discuss the class list.
3. Reports from pupils using task cards.

Lesson 6

PURPOSE

To evaluate what the children have learned about oceanography occupations.

MATERIALS

1. Tape from pre-test, if desired.
2. Tape recorder, if desired.
3. Entry Level Assessment.
4. Task cards (all).

INTRODUCTION

Say: "Today we are going to find out how much we've learned about oceanography. First, let's listen to the tape we made before this unit began. Let's find out how much more we know now."

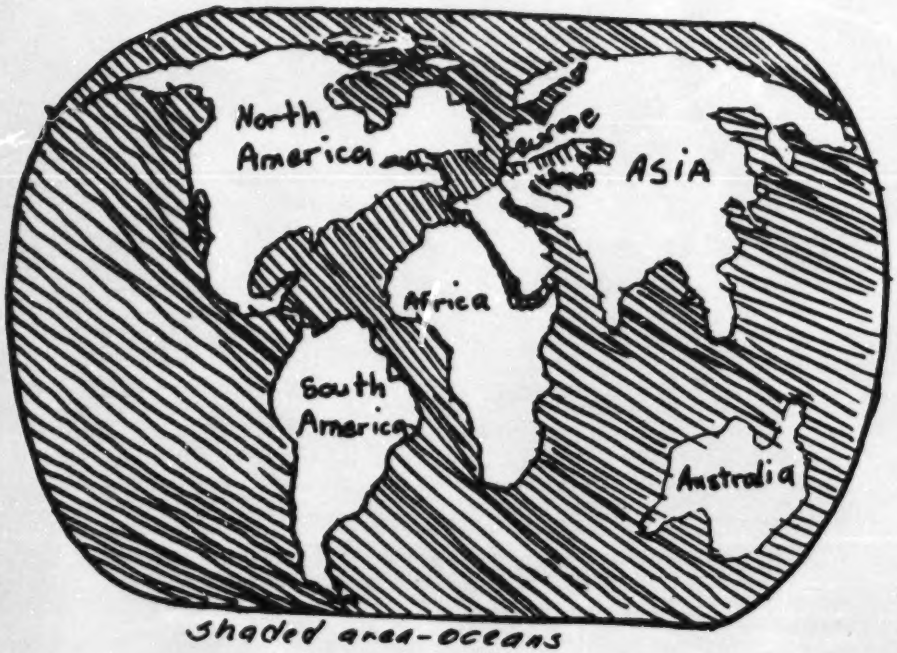
CLASS ACTIVITIES

1. Listen to pre-test tape.
2. Make new tape as a post-test.
3. Free use of task cards.

SUMMARY

The tape acts as a summary for the unit. During taping, children should feel free to express their opinions regarding this unit, describing what they liked, as well as what they disliked.

TASK CARD 1



THAT'S A LOT
OF WATER !!

You need:

-world map and globe

-books or encyclopedia

-paper, pencils, crayons

The oceans cover more than two-thirds of the earth's surface. They are <u>really</u> big! The Pacific Ocean is the largest. You live close to the Pacific.

1. Write a short report about the Pacific Ocean:
   Describe it's size, how deep it is and some of the countries that border it.
   Tell about some of the living creatures that make their home in the Pacific Ocean.
2. Draw a map showing the Pacific Ocean and some of the major countries that border on it.
3. Share your report with the class.

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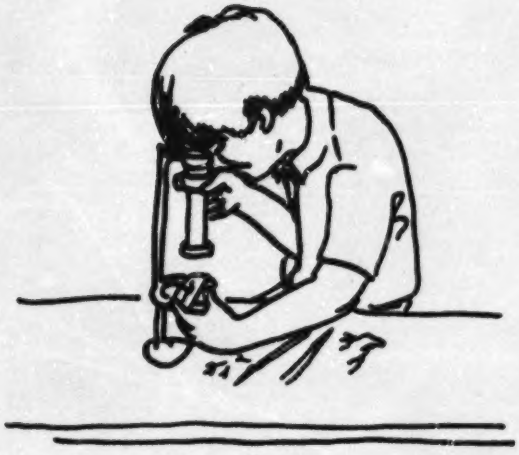


MY JOB IS . . .

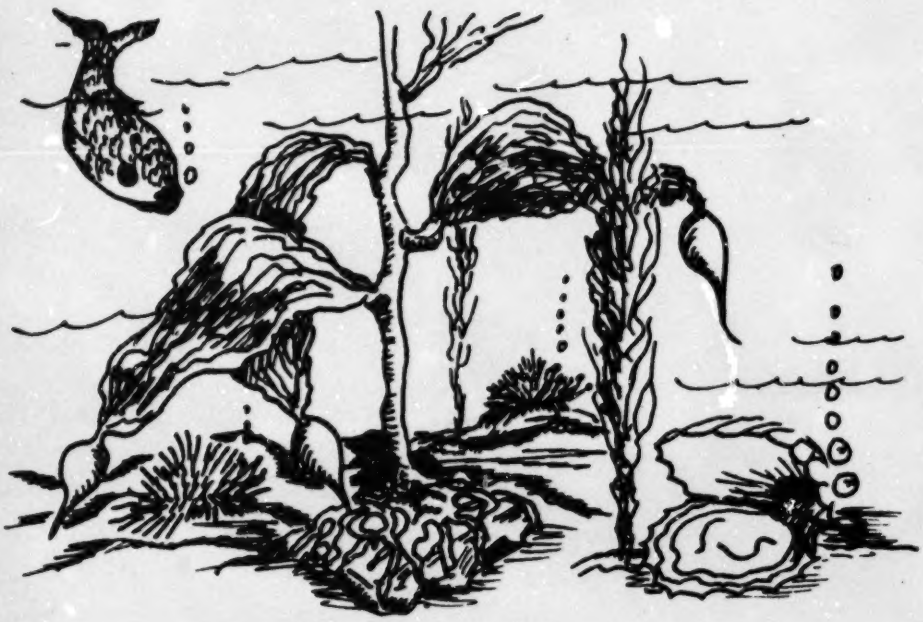
You need:

- -a good imagination
- -books about the ocean and oceanographers
- -an encyclopedia and dictionary
- -paper, pencils and crayons

Oceanography is the study of the sea; the earth under the sea; the air above the sea; and the shore beside the sea.

1. Pretend you are an oceanographer. What kind of work would you do? Where would you work? What kind of an oceanographer would you like to be?
2. Write a short story telling about your life as an oceanographer. Try to answer the above questions in your story. You may first want to read about oceanographers in an encyclopedia or in books.
3. Draw a nice picture showing something about the work you do as an oceanographer.
4. Share your story and picture with the class.

TASK CARD 3



IT'S ANOTHER WORLD!

You need:

-a group of children

-books

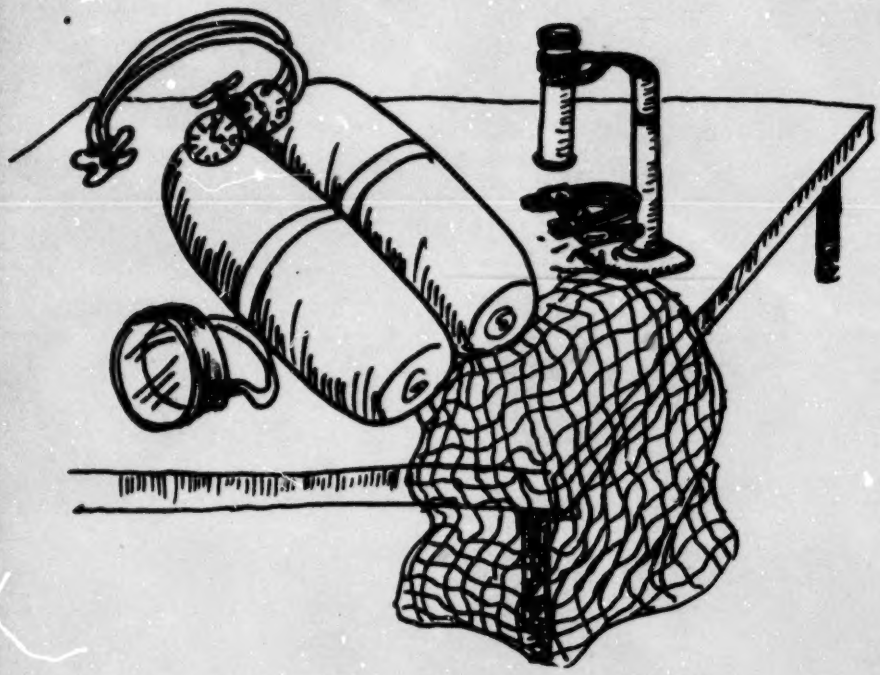
-material, teacher will give you

-butcher paper

-pencils, felt pens, crayons

The Geological Oceanographer (Marine Geologist) studies the way the ocean floor is formed. This is almost like another world- the world beneath the ocean.

1. Plan and draw a mural showing what the ocean floor looks like. Show many of the different features, such as high hills and mountains, deep canyons, and large rock formations.
2. Show some of the different kinds of plant and animal life that live in this undersea world.
3. Display your mural so that the entire class may learn from it.



TASK CARD 4

TAKE A LOOK!

You need:

-a group of children

-a table or showcase

-various items that have something to do with oceanography

Oceanographers do many different kinds of jobs. Their work involves everything there is to know and learn about the oceans.

1. Plan an exhibit of as many things connected with the work that oceanographers do as you can find.
2. Use a table or showcase to display your exhibit.
3. Make labels to identify each item.
4. Write a short paragraph about each item, telling what it has to do with oceanography.
5. Share your exhibit with the class.

Note: Some of the items you might display include:

Sea shells, mounted fish, seaweed, books about oceanography, microscopes, prepared slides, fish collection equipment, scuba diving gear, chemistry equipment, rock and mineral equipment, etc.

THE FOOD CYCLE IN THE SEA

You need:

-paper and pencils

Nature has an amazing plan for all living plants and animal life in the ocean. This plan is called the Food Cycle of the Sea. The phytoplankton is the food base for the animals in the ocean. Certain animals of the zooplankton eat these plants. These animals, in turn, are eaten by other members of the zooplankton or by fish or other swimming animals. (Usually, larger animals eat smaller animals.)

After an animal dies, it begins to sink. Before most dead animals sink very far, they are eaten by creatures that live at lower depths. When these animals die, they become food for animals that live even deeper. Animals begin to decay as soon as they die. They also give off waste products. These waste products, and dead animals that are not eaten, are broken down into minerals. Rising currents carry these minerals to the ocean surface, where plants of the plankton use them as food. Thus, the food cycle in the sea goes on and on.

1. Read the above information.
2. Draw a picture which shows how the food cycle works.
3. Tell your class all you have learned about the Food Cycle of the Sea.

I'D LIKE TO BE. . . .

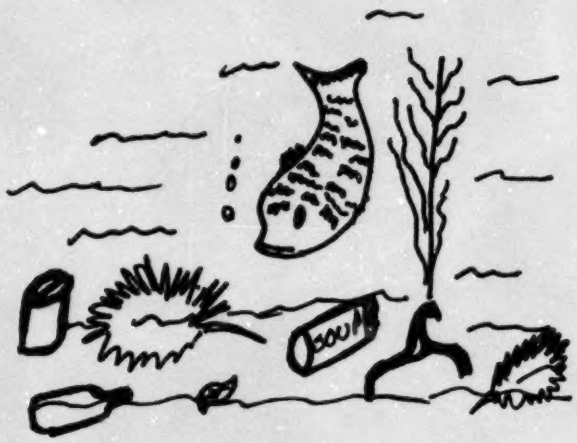
You need:

-a good imagination

-paper and pencil

You have been learning quite a bit about oceanographers and the work they do. Do you think this is interesting work? Do you think it might be the type of work you would like to do someday? If so,

1. Write a story telling what kind of an oceanographer you would like to be.
2. Tell what kind of work you would do.
3. Tell some of the places you might go in your work.
4. Write about some of the things you would have to know and be able to do.
5. Share your story with the class.



SAVE OUR OCEANS !

You need:

-a group of children

-magazines

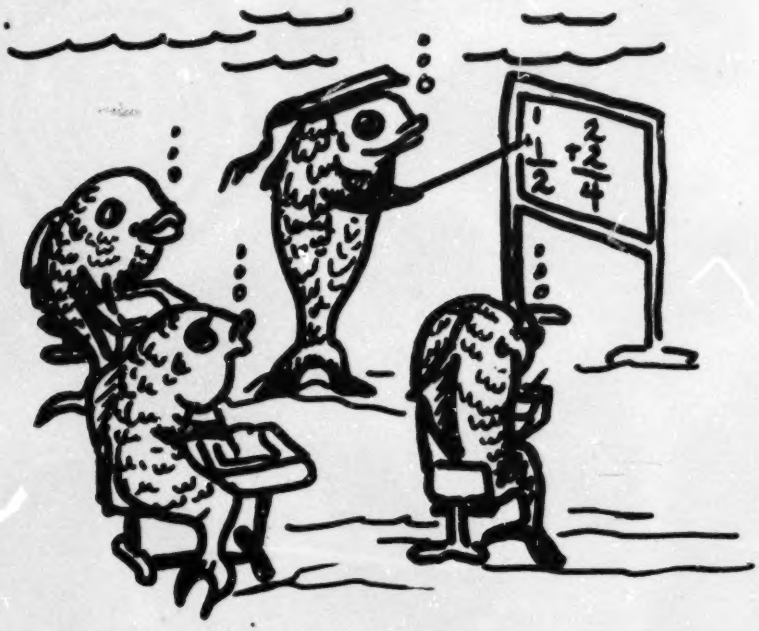
-butcher paper

-paper, pencils and felt pens

-books

One of the important things that oceanographers do is to study the effect of pollution on the ocean. Oceanographers tell us that this is becoming a very serious problem.

1. Plan a group report about the problem of ocean pollution.
2. Plan a mural which will be used as part of the group report.
3. Show several different kinds of pollution that are harmful to the ocean.
4. Explain what oceanographers are doing to try to solve the problems of pollution.
5. Tell what each person can do to help solve the problem.
6. Explain what will happen to the ocean and all living things in it, if man continues to pollute it.



FISH SCHOOL

You need:

-a small aquarium

-a group of children

-poster or butcher paper

-books

-crayons and felt pens

Do you have a home aquarium? Perhaps you have a friend in your class who does.

1. Plan a report about different species of fish.
2. Try to have at least one member of your group bring his aquarium to class.
3. Make a mural or poster, showing several different types of fish.
4. Label the different types of fish and learn all you can about each one.
5. Present your group report to the class.

TASK CARD 9

DOLPHIN TALK

You need:

-to think like a dolphin

-books

-tape recorder

-tape

-small group of children

Marine Biologists have been studying the sounds dolphins make for several years. They believe that some day man may be able to talk with dolphins. Wouldn't that be fun!

1. Take turns being a dolphin. You must first learn all you can about dolphins if you are going to be able to be a good dolphin.
2. The other boys and girls in your group are to take turns asking the dolphin questions about himself. Questions like: Where do you live? What do you eat? Where do you travel? How big do you grow? How long do you live? Are you afraid of sharks? etc.
3. Use the tape recorder to record the conservation.
4. Draw a nice picture of a dolphin and label his main body parts.
5. Play the tape for the class and show them your picture.

ALL ABOUT SHARKS

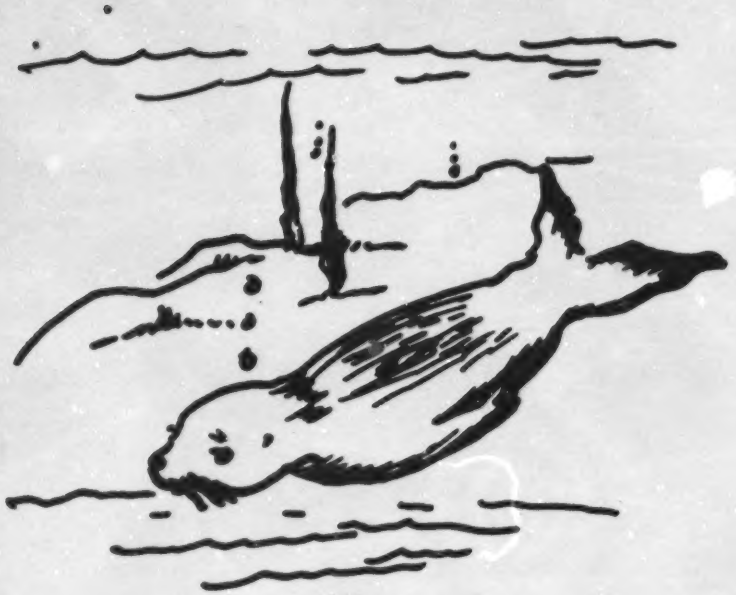
You need:

- -books
- -magazines
- -butcher paper
- -felt pens and crayons
- -small group of children

Sharks are some of the oldest creatures in the world. Their species have been around for millions of years! You have to be pretty tough to survive that long.

1. Learn all you can about sharks.
2. Prepare a report about sharks.
3. Make a mural showing several different types of sharks.
4. Include in your report information about safe swimming habits in waters where sharks might live.
5. Share your report with the class.

Note: Check the National Georgraphic and Reader's Digest for good articles about sharks.



LIONS THAT SWIM

You need:

-books

-magazines

-paper and pencil

-crayons and felt pen

Can lions swim? California Sea Lions can. The sea lion is a marine mammal that can live in the sea or on the land.

1. Pretend you are a Marine Zoologist and that you have been given the job of learning all you can about sea lions and sharing what you learn with others.
2. Prepare a report about sea lions.
    a. Describe how they look.
    b. Tell all about their living habits.
    c. Tell where they live and travel.
    d. Find out if they are an endangered species.
3. Draw a nice picture of a sea lion. If you are working with someone else, draw a poster or mural, showing the life style of the sea lion.
4. Share your report with the class.

TASK CARD 12

AN OCEAN PARK

You need:

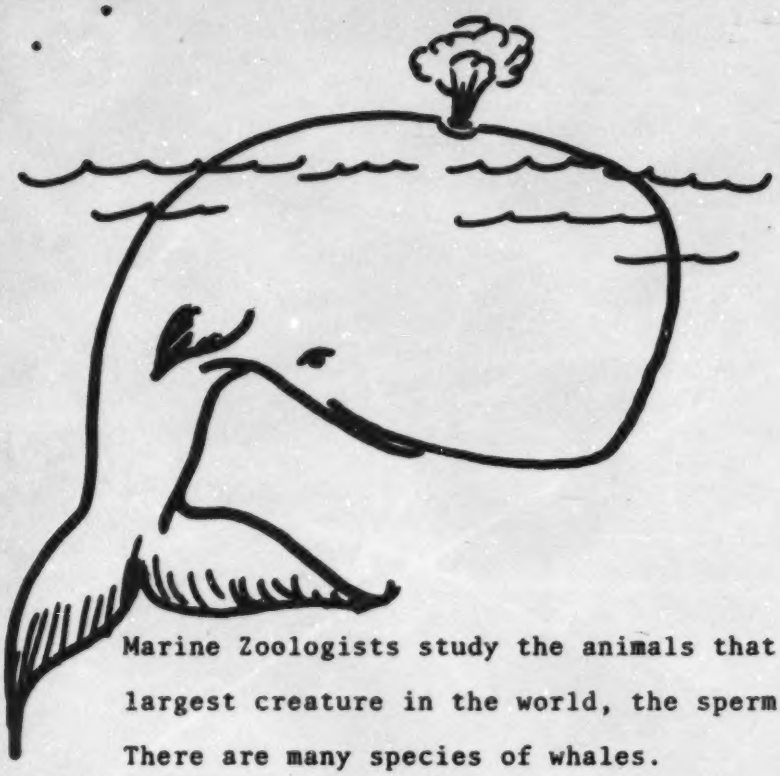
-a good memory

-paper and pencil

HAVE YOU EVER VISITED SEA WORLD, IN SAN DIEGO?* Did you enjoy your visit? Did you see the whale show? Did you pet a dolphin or see the dolphin show?

1. Write a story about your trip to Sea World.
2. Tell what you learned about the dolphins, whales, and other marine animals.
3. Write about the things that you thought were the most interesting.
4. Mention at least two facts about marine plants or animals that you learned from your visit.
5. Share your story with the class.

*To the teacher: (The ocean parks, such as Marineland in Los Angeles, and Marine World in the Bay Area are also applicable.)



TASK CARD 13

GIANTS OF THE DEEP

You need:

-books

-magazines

-paper and pencil

Marine Zoologists study the animals that live in the ocean. The largest creature in the world, the sperm whale lives in the ocean. There are many species of whales.

1. Learn all you can about whales.
2. Write a report about whales.
   a. Tell about the different kinds of whales.
   b. Explain how whales live-what they eat, how far they travel, how long they live, etc.
3. Find out if whales are endangered species.
4. Draw a picture of one or two of your favorite kinds of whales.
5. Share your report with the class.

A WALK ALONG THE BEACH

You need:

-paper

-pencil

Have you ever gone for a nice long walk along the beach? What did you see? Hear? Smell? Feel?

1. Write a story about taking a walk along the ocean. Tell about the things there are to see:
   a. You might see a group of porpoise or flying fish.
   b. Seagulls, kingfishers and other birds.
   c. All kinds of sea shells and rocks.
2. Tell about the sounds you hear and the different things you can touch and smell.
3. Maybe you have had an adventure at the beach, or have seen something exciting happen. Tell about it.
4. Have you caught any fish along the ocean or watched someone catch a big fish, surfcasting? Tell about it.
5. Share your story with the class.